

IERASG 2017

Meeting Summary

Bob Burkard

Thursday 25 May 2017

Preconference Presentations:

Jay Hall: “Clinical Application of Auditory Evoked Responses in Children: Evidence-Based Procedures and Protocols”

Steven Bell: “Analysis and Applications of Speech Evoked Responses”

John Rosowski and Pat Feeney: “Wideband Acoustic Immittance”

Andrew Dimitrijevic: “Advanced EEG Analysis”

Invited Presentations:

Hallowell Davis Lecture: John Durrant: “Unpublished Works and the Importance of Continuing to Turn Stones in Our Science”

Guest Lecture 1: John Ferraro: “Electrocochleography in the Diagnosis and Possible Prediction of Meniere’s Disease/Endolymphatic Hydrops

Special Session: Roger Thornton & Colleagues: “History of IERASG”

Keynote Lecture 1: John Rosowski: “Wideband Acoustic Immittance and Sound Power Absorbance as a Measure of Acoustic Reflex”

Guest Lecture III: Paul Kileny: “Tympanic EcochG in SSCD: Diagnostic and Intraoperative Monitoring Applications”

Special Session: David McPherson and Tomasz Wolak: “fMRI”

Guest Lecture IV: Mridula Sharma: “Application of Auditory Evoked Potentials in Understanding ABC: Auditory Processing, Bilingualism and Cognition”

Keynote Lecture II: Frank Musiek: “The Middle Latency Response (MLR) and Disorders of the Central Nervous System”

Submitted Presentations:

Podium: 55

Poster: 62

Responses:

Y/Z (absorbance/reflectance): 5

EcochG (1)

CM:1

SP: 1

AP: 7

ABR: 40

MLR: 2

ASSR/EFR: 19

FFR: 1

SVP: 24

ERP: (4)

MMN/MMR: 4

P3: 3

N4: 1

VEMPs: 5

EEG: 4

'Subjects':

Normal-Hearing Young Adults: 55

Older Adults: 4

Children: 10

Infants: 8

Hearing Impaired: (4)

Conductive: 7

Sensory: 4

8th Nerve: 2

Auditory Neuropathy: 3

Synaptopathy: 8

Cochlear Implants: 16

Hearing Aids: 2

Musical Training: 3

Ear Plugging (unilateral): 1

Diabetes: 1

Tinnitus: 4

CAPD: 1

Modeling: 3

Susac's Syndrome: 1

Down Syndrome: 1

Narcotics Users: 1

Zika Virus: 1

Nasopharyngeal Carcinoma: 1

Ear Canal Pressure: 1

Dead Regions: 1

Meniere's: 1

Low-Tone Hearing Loss: 1

Mild Cognitive Impairment: 1

Listening Effort: 1

Non-Human Subjects:

Mice: 1

Rats: 1

Guinea Pigs: 1

Chinchillas: 1

Dolphins: 4

Stimuli:

Clicks: 25

Tonebursts: 16

Tones: 4

Multitones/multistim: 4

Two-Tone: 1

SAM Tones: 6

Complex Harmonic Tones: 1

Short Acoustic Stimuli: 1

Speech (Kraus): 7

Speech (non-Kraus): 22

MLS: 2

RSA: 1

CLAD: 1

QASSR: 1

Chirps: 9

Electrical: 3

Bone Conduction: 4

Noise Gaps: 1

BBN (stimulus): 1

NBN (stimulus): 1

Spectral Rippled Noise: 1

Masking:

Forward: 2

Backward: 1

Ipsi-Direct: 11

High-Pass: 1

Visual Stimuli: 1

Emotional Tone: 2

Countries (first author, submitted):

England: 12

Australia: 7

Russia: 2

Germany: 7

Brazil: 7

The Netherlands: 4

United States: 16

South Korea: 18

Poland: 16

Italy: 1

Belgium: 8

Canada: 5

New Zealand: 1

Denmark: 4

China: 2

Sweden: 2

Japan: 2

Iran: 1

Ireland: 2

Indonesia: 1

Special sessions

Something old/something new?

Old:

Hallowell Davis Lecture

History of IERASG

EcochG

MLR

New(er?):

Wideband Acoustic Absorbance

fMRI

CAEP: Bilingualism

Our Polish Hosts:

Wideband Tympanometry

EcochG

OAEs

ABR

ASSR

ERPs

VEMPs

The Old/The New:

Museum of Warsaw Uprising

World Hearing Center

Memorable topics/Presentations

ABRs:

Change in Bandwidth of AEPs over time: Base of Sync functions

Faster is better: Sequential testing strategy, weighted averaging:
awake/asleep; chirps

Subjects: Zika virus, inherited neuropathies (Charcot-Marie Tooth); musicians versus non-musicians; monaural atresia; diabetes & tinnitus; hidden hearing loss human: lifetime noise exposure; rats: noise exposure & threshold recovery)

Stimuli: Forward masking of speech ABR; backward chirps

Technique: ABR & ASSR: QASSR

MLR:

Depth of Anesthesia: chirps/MLS

EcochG:

CM & CI

CLAD (ABR & EcochG): With increasing rate, SP little affected while AP decreases

OAEs:

Time/Frequency analysis

Latency estimate

Contralateral suppression

High frequency DPOAEs

Pressurized vs non-pressurized OAEs

Z/Y/Reflectance/Absorbance:

Comparison of wideband tympanograms for Mimosa and Titan

Wideband tympanograms & Otosclerosis: 5 types

Wideband absorbance: Otosclerosis and middle-ear implants

ASSR/EFR/FFR:

Multirate ASSR: Quadrature Amplitude (de)Modulation

Ipsi/contra binaural ASSR

Response detection: speech stimuli, Hotellings, MSC , multichannel, multiple harmonics

ASSR and the ABLB

ASSR in the future: Use ASSR and brain-computer interface to program HA

eASSRs and electrical artifacts

ASSR and Cochlear Dead Regions

Behavioral and ASSR thresholds

EFR & Synaptopathy

Consonant Context & Vowel-evoked EFRs

VEMPs:

Electrode placement & oVEMP

cVEMP/oVEMP: Susac's syndrome

Bone conduction oVEMPs (minishaker, different skull stimulation sites)

cVEMP: Splenius capitus vs. SCM

EEG:

EEG, Alpha rhythms & Listening Effort

EEG while watching/listening to natural stimuli

ERPs:

Bilingualism

A steady-state oddball acoustic change complex to vowel stimuli

Methods to reduce CI/electrical artifact for CAEP testing

CAEP and stimulus bandwidth (and the critical band)

Use of deep neural networks 2x hit rate of Hotelling's T (reduces test time)

Onset/Offset gap responses

Mild cognitive impairment

Spatial change complex

CI/epidural recordings/brain-computer interface

P300 and Amphetamines (and other narcotics), cognitive impairment

CAPD: visual ERPs to CPT

Congruent/incongruent sentences/N400/SNR

ERPs/VOT/SNR

Some Recurring Themes:

Semantics:

Immittance

Abbreviations

prihc

Standardization:

Chirps

Absorbance

Speech Level; SL/SPL

CI Coding

Science-Industry-Clinical

Application:

Bench to Bedside

Ease of Use versus Flexibility

Another of my hopes is that users and students of electric response audiometry, through communication with one another by way of the International Electric Response Audiometry Study Group, by way of regular publications, and by direct personal contact, can converge on a uniform terminology and also on some of the basic procedures, so that the results from different clinics and laboratories can be compared directly with one another. If this little book contributes to that end it will serve one of its intended purposes.

Ecologically valid sounds

Speech ABR

Synaptopathy

Dziękuję

Prof. Henryk Skarżyński

Chair of the Symposium

Prof. Krzysztof Kochanek

Chair of the Scientific Committee

Assoc. Prof. W. Wiktor Jedrzejczak

Chair of the Organizing Committee

Ass. Prof. Piotr H. Skarżyński

Secretary of the Organizing Committee